

	1	10	20	30	40	
1 Hsap1L3MSRELAPLLLL	LLSIHSALAM	RICS	FNVRS	FGESKQEDKN	A
Uurs1L3MPRPPAFQLLL	LLSISSALAL	RLCS	FNVRS	FGAEKKNKN	A
Mmus1L3MSLHPASPRLASLLF	LLALHDTLAL	RLCS	FNVRS	FGASKKENHE	A
Lafr1L3RSARMSQSLPALLLL	LLSVHGTLLAL	RVCS	FNVRS	FGETKRENQK	V
Mdom1L3MTRMLPVTLLLL	LFMLGSIHSL	KICS	FNVRS	FGAAKRDNSQ	V
GgallL3MLLFALFS	LLCFNPSLSL	RICS	FNVRS	FGAEKIGRAEV	V
AplalL3MLLFVLF	LFYFSPSLSL	KICS	FNVRS	FGAEKIARPEV	V
Dnov1L3MLLIVAL	LFSFHTSLSL	KICS	FNVKS	FGAEKIARQEV	V
LagilL3MLCVPLFL	LFSFHAALS	KICS	FNVRS	FGAEKRTRPEI	I
Pbiv1L3MLRFFLFL	LFFCQAVQSL	RICS	FNVRS	FGESKRTKPEI	I
Scan1L3MVNMLFLHGVLL	LASFHEIQSL	KICS	FNVRT	FGKSKVAKEGI	I
Pmar1L3MRSLLSLLLLL	AVCSCAVNAL	KICS	FNIQS	FGETKAAKGI	I
Pnat1L4-2	MKIAS	FNVRR	LGSLKLADKN	V
Ipun1L4-2	MKIAS	FNVRR	LGSLKADST	V
Drer1L4-2	MKIAS	FNIQRM	GPSKLSDDKV	V
Drer1L4	MKVAS	FNVQK	FGKSLSDPAV	V
Pnat1L4	MKIAS	FNIQK	FGKRLSDPAV	V
TrublL4	MKIAA	FNIQK	FGKRLSDPDV	V
Ipun1L4	MKIAA	FNIQK	FGKRLSDPDV	V
Scan1L4	MKIAA	FNIQK	FGKRLSDPDV	V
2 Pnat1L1MTRPLMLLVLIH	LCGLLGCGYGF	KICA	FNVQS	FGDSKAGDKN	I
Ipun1L1MILPHSLLLVLC	LSGPLACHAF	KICA	FNVQS	FGDSKATDSTV	V
Drer1L1MRMTIRRILLSIFL	LSGLLTCYGF	RICA	FNVQS	FGDSKADAKI	I
TrublL1MKFSILLIIFFTD	LCHVDASSDF	RICA	FNLHN	FGESKSKKTSV	V
Hsap1L1M.HYPTALLF	LILANGAQAF	RICA	FNAQRL	TLAKVAREQV	V
Lafr1L1DPGLMWTLWRGPAAM	PCPVALLF	LLLASGAEAF	RICA	FNAQRLTLTKVAREV	V
Uurs1L1M.HCP.AVLL	LLLPGGAEAF	RICA	FNAQRL	TLKAREHV	V
Mdom1L1MSI.SVPMLFFV	LLLADGTSAF	RICA	FNAQRL	TVTKVAKVRI	I
Mmus1L1	MPFGQPGFLWRVPDAHIAMRGLVMAPLL	ILLVGGTEAF	RICA	FNAHRL	TLAKLTKESV	V
LagilL1MEPSCFLRFLP	LLLCGAAAF	RICA	FNTQR	FAQKASKASV	V
Pbiv1L1MATLLRSLPAVLL	LLLCGAAAF	RICA	FNAQR	FAQKVNKPRV	V
Dnov1L1	MGLGGAGYGANES	YMGIS	SGADKGINNPP	..	
LagilL1-2MG.QSFTLLLI	LGQVAVAGAF	KICA	FNIQS	FGRAKANRRV	V
Pbiv1L1-2MA.QAFTFLLL	LDMMLVAASF	KICA	FNIQS	FGQAKANQKV	V
Pnat1L1-2MRPAVLLMCFVG	ICLFSTTSLV	KICA	FNVQS	FGAEKANNKVV	V
Ipun1L1-2MR.SLLLICIVG	IGFLTALS	KICS	FNVQS	FGAEKANNKRV	V
Drer1L1-2MR.PPLLFCFIG	LCLWTCVISL	KICA	FNIQS	YGEAKANSNTRV	V
Scan1L1-2MRWFLFLCT	LAS...SRCF	RICS	FNIQC	FGESKGAKPVV	V
Pmar1L1MCEGRTRGHAGALWLSLLS	LVCGGASSDL	KICS	FNIQT	FGQAKASKPHV	V

	50	60	70	80	90												
1 Hsap1L3	MDV	IVKVI	KRCDI	ILVM	EIKD	SNNR	ICPI	LM EK	LN	RNSRRG	IT	YNY	VI	SSR	LGRN	T	
Uurs1L3	MDV	ITKVI	KRCDI	ILLM	EIKD	SSNM	ICPT	LM ER	LN	GNSRRG	IM	YNY	VI	SSR	LGRN	T	
Mmus1L3	MDI	IVKII	KRCDI	ILLM	EIKD	SSNN	ICPM	LM EK	LN	GNSRRS	TT	YNY	VI	SSR	LGRN	T	
Lafr1L3	MDI	IVKII	KRCDI	MLLM	EIKD	SNNR	ICPM	LL KR	LN	GNSRRG	IK	YNY	VI	SSR	LGRN	A	
Mdom1L3	MDV	IVKII	KRCDI	MLLM	EIKD	SRNI	ICPT	LI KM	LN	GKSRRG	TKD	YDY	II	SSR	LGRN	A	
Ggal1L3	LDA	VVKII	SRCDI	MLLM	EIKD	NKNR	MCPL	LV QQ	LA	GQTKGN	REE	YSC	VV	SSR	LGRK	S	
Apla1L3	VDV	VVKII	ARCDI	MLLM	EIKD	EAKNR	TCPL	LV EK	LS	GQTKGQ	KEQ	YSC	VV	SSR	LGRK	T	
Dnov1L3	IDV	VVKVI	LRCDI	MLLM	EIKD	NNNR	ICPL	LM ER	LN	RWSKGP	KEE	YSY	VI	SSR	LGRK	T	
Lagi1L3	LDV	IVEVI	SRCDI	MLLM	EIKD	NSNR	LCPF	LL EK	LN	GHLQE	...K	YSY	VV	SSR	LGRR	T	
Pbiv1L3	IEV	IVEII	SRCDI	MLLM	EIKD	NSNR	ICPF	LL EK	LN	GQSEG	...E	YNF	VV	SSR	LGRR	N	
Scan1L3	LDV	LVRII	SRCDL	MLLM	EIKD	SSNK	AFPI	LM TS	LN	NQSNRN	...E	YKF	II	SSR	LGRK	A	
Pmar1L3	MAI	ITKVT	SRCDI	MLVM	EVKD	STGS	SLVS	LV NE	LN	RGDRR	...P	YTY	II	SSR	LGRK	S	
Pnat1L4-2	VKY	LIIKIV	SRYSI	IVILE	EVVD	KAGK	AMAK	FLHE	LN	STRANK	KHP	YSMA	AV	SSS	LGR	T	
Ipun1L4-2	IKY	LIIKIV	SRYSI	IVILE	EVVD	KSGK	AMAK	FLHK	LN	STGNNK	KRP	YRMV	IV	SSS	LGR	L	
Drer1L4-2	VKT	LIIKIF	SRYSI	IVILE	EVVD	KQGK	AINQ	FLNE	LN	KTGANK	NSP	FKMV	VG	SSR	LGR	L	
Drer1L4	LQT	LIIKIV	SRYSI	IVILE	EVVD	SKGR	AMDN	FLKE	LN	KF...DK	KAH	YTMEL	STR	LGR	G	N	
Pnat1L4	LST	LVKIV	SRYSI	IVILE	EVVD	GSGT	VDTF	FLKE	LN	KN...NP	KRP	FSLKI	SKR	LGR	T	V	
Trub1L4	LRT	LVKIV	SRYSI	IVILE	EVVD	ISGE	AVCF	LEAL	NTS	...SM	KHH	YTMKI	STR	LGR	T	R	
Ipun1L4	MKT	LIRIV	SRYSI	IVILE	EVVD	EKGK	EPS...	FGRA	...NP	ENR	YSKKI	IVR	LGR	T	T		
Scan1L4	VST	IVNILL	RYDIT	LI ME	EVTD	KTGT	ATKK	LL EE	LN	KQ...AES	HYS	FEL	SKP	LGR	G	T	
2 Pnat1L1	LHT	LTQIV	SRCDV	LLQ	EVVD	HKKK	AIP	ELLRS	LN	NFDRSH	...Q	YDY	VV	SSR	LGR	S	T
Ipun1L1	LHI	LTQIV	SRCDV	LLQ	EVVD	QKKT	AVPR	LLNR	LN	DYERGH	...Q	YDY	VV	SSR	LGR	T	T
Drer1L1	MNS	ISRIV	ARCDI	CLL	QEVVD	QKNK	AIPR	LL EAVN	KIG	DN...D	FQY	VAS	SR	LGR	T	T	
Trub1L1	MHT	LTRII	ARCDV	LLQ	EVVD	RKER	ALPQ	LM EL	LN	RYDSER	...R	FQV	ASR	LGR	SD	S	
Hsap1L1	MDT	LVRII	ARCDI	MVL	QEVVD	SSGS	AIP	LLRE	LN	RFDGSG	...P	YST	LSS	PQ	LGR	S	T
Lafr1L1	MDT	LVRII	ARCDI	MVL	QEVVD	SSSS	AISL	LLRE	LN	RYDDSG	...P	YSS	LSS	PQ	LGR	S	T
Uurs1L1	MDT	FVRIL	ARCDI	MVL	QEVVD	SSGS	AISL	LLRE	LN	RFDGSG	...S	YSF	LSS	PQ	LGR	S	T
Mdom1L1	MDS	LVRII	ARCDI	TVL	QEVVD	TSGD	AIP	LLRD	LN	RFDDSG	...P	YSF	LSS	PQ	LGR	S	T
Mmus1L1	MDT	LVQIL	ARCDI	MVL	QEVVD	SSQT	VVFP	LLQK	LK...SS	R...S	YSF	LNS	SSL	LGR	S	T	
Lagi1L1	MDT	LVKIL	SRCDI	AVL	QEVMD	AKGK	AVPA	LV AA	LN	RYHSS	...P	YTY	LT	SPL	LGR	N	
Pbiv1L1	VDT	LVKIL	ARCDI	SVL	QEVMD	AKGK	AVPA	LM NA	LN	RQFDDL	H...S	YSY	LA	SPL	LGR	G	N
Dnov1L1	.	FPPQII	TRCDI	MVL	QEVTD	TKGQ	VVPL	LLNT	LD	STAGPG	...A	YQA	LSS	PQ	LGR	G	S
Lagi1L1-2	MGA	LVQIL	SRCDI	SAI	QEVVD	SKGA	AIQ	LLRE	LN	RYDPSH	...H	YSR	LES	SKR	LGR	A	S
Pbiv1L1-2	MGA	LVQIL	SRCDI	SAV	QEVVD	SKGL	AIQ	LLRR	LN	RYDPSH	...R	YSY	LES	SKR	LGR	S	S
Pnat1L1-2	MGI	LIIKII	SRCDL	LIQ	EVVD	SKGE	AIPV	LL KA	LN	RFDKSH	...M	YNH	LES	SKR	LGR	T	T
Ipun1L1-2	MGI	LTKIIS	SRCDL	LIQ	EVVD	SKGK	AIP	LL KN	LN	RFEKSN	...V	YTH	LES	SKR	LGR	K	A
Drer1L1-2	MEI	LTKIIS	SRCDL	LIQ	EVVD	SRGE	AISA	LL MS	LN	RFDKSH	...I	YAH	LES	SKR	LGR	K	T
Scan1L1-2	MEI	ITKIVA	SRCDI	CLM	EVVD	SSGA	VVDQ	LL QD	LN	SYDQHH	...Q	YVY	LAS	SKR	LGR	E	K
Pmar1L1	MEI	IVKII	SRCDV	TLVM	EIRD	CKNCT	LPR	LM EQ	LN	NQHRGH	...P	YSY	VAS	SKR	LGR	G	S

	100	110	120	130	140	150
1 Hsap1L3	YKEQYAFLYK	EKLVSV	KRSYHYHD	YQDG...DA	DVFSREPFVW	FQSPHTAVKDFV
Uurs1L3	YKEQYAFLYK	EKLVSV	KKRYLYHD	YQAG...DA	DVFSREPFVW	FQSPYTVVKDFV
Mmus1L3	YKEQYAFVYK	EKLVSV	KTKYHYHD	YQDG...DT	DVFSREPFVW	FHSPTAVKDFV
Lafr1L3	YKEQYAFLYM	EKLVSV	KKSYVYGD	NQNG...DA	DVFSREPFVW	FQSPHTAVKDFV
Mdom1L3	YKEQYAFLYR	KNMVSV	KKSYHYPD	TQNG...DE	DAFSREPFVW	FYSPTAVTDFV
Ggal1L3	YKEQYAFLYR	RNLVSV	KQTYQYPD	TQPG...DE	DAFSREPFVW	FRLPKTAVKEFA
Aplal1L3	YKEQYAFIYR	QNLVSV	KQTYQYPD	TQPG...DE	DAFSREPFVW	FQSPKTAVKEFA
Dnov1L3	YKEQYAFIYR	HNLVSV	KQIYQYPD	LQPG...DE	DAFSREPFVI	WFLSPKTAVKEFA
Lagil1L3	YKEQYAFFYR	LKMVSV	KQIYQYPD	LQPD...DE	DALFSREPFV	WSSPKTVVRECV
Pbiv1L3	YKEQYAFFYR	LKRVS	KQTYQYPD	LQPG...DE	DAFSREPFVW	FRTPTVVERFV
Scan1L3	YKEQYAFIYR	PKLSV	KESYQYPD	DDQ...T	DVFAREPFVW	FSSPLTTVVKDF
Pmar1L3	YKEQYAFIYR	QTMVSV	LDRYQYMD	EQVG...DV	DAFSREPFVK	FSSPTTDIKEF
Pnat1L4-2	YKEQFVCLYR	KDQATL	ADTYQYED	NQEG...DE	DAFSREPFIL	RFTLANTMLKDL
Ipun1L4-2	YKEQYIACLYR	PDQVQL	IDTYQYED	NQEG...DE	DAFSREPFIL	RFGLPDRMVNDL
Drer1L4-2	YKEQFVCFYR	EADAKLL	NTYQYED	NQVG...DE	DAFSREPFIL	RFCQKNTVMKDL
Drer1L4	YKEQFMFLYR	EDVEL	VGSYQYKD	DQPG...DE	DAFAREPFYIL	RFKCPNAVLEDL
Pnat1L4	YKEQYVFLYR	EDEAKV	TGTYQYED	NQPG...DE	DAFDREPFYIL	RFSCLPNTVMKDL
Trub1L4	YKEQYFLFLYR	DNMVDL	VGSYQYED	DLTE...GG	DVFARDPYIL	RFLPNTVMKDL
Ipun1L4	YKEQFLFLYR	GAVVNV	IGTYQYED	NQCG...DE	DAFDREPFYIL	RFSCLPNTVMKDL
Scan1L4	YKEQYLFYR	DDVQV	ERRFYQYK	MQPG...DE	DAFSREPFVI	QFKSQTTAVQDF
2 Pnat1L1	YQEYVVFYR	RDVRL	KDQYQYPD	TQKG...DE	DAFAREPFV	RIQAPKTVIGEF
Ipun1L1	YQEYVVFYR	TDSVRL	INQYQYPD	TQKG...DE	DAFAREPFV	HFRAPKTVIGEF
Drer1L1	YQEYVVFYR	KSTAIL	KGYQYPD	TQTG...DI	DAFSREPFV	YFQAPKTLAKEF
Trub1L1	YQEYVVFYR	TDTATV	TGQYQSP	DRPG...DV	DAFAREPFV	RFRAPKTAIKEF
Hsap1L1	YMETVYFYR	SHKTQV	LSSYVYND	ED...D	DVFAREPFV	QFSLPSNVLP
Lafr1L1	YMEKYVYIYR	SHRTQV	LESYVYSD	QD...D	DLFAREPFV	QFTLPSKVLPS
Uurs1L1	YMEKYVYIYR	SHKTQV	LDSYMYED	KD...D	DLFAREPFV	QFTLPSKVLPS
Mdom1L1	YMEKYVYVYR	SHKTQV	LGSYVYDD	KS...D	DIFAREPFV	QFSLPSKVLPS
Mmus1L1	YMEKYVYIYR	SDKTQV	LNFYQYND	TD...D	DIFAREPFV	HFSLPSKTLPS
Lagil1L1	YQERYVFIYR	EQKTRV	LDSYSYED	SHPD...RP	DVFAREPFIA	RFSIPNKKLKE
Pbiv1L1	YQERYVFIYR	NQKTQI	LDYKYED	LHPD...RP	DVFAREPFIA	RFSIANKKLPE
Dnov1L1	YQERYVYFYR	PGRACL	WDWFVYED	THPQ...RP	DVFAREPFV	ARFSLPSPALPE
Lagil1L1-2	YKEQNVFVYR	MDVSV	TDWCQF	GEDAS...EY	KAFARGPFA	ARFHSPYTVILDF
Pbiv1L1-2	YKEQNVFVYR	RDVSVI	TAWCQV	GEDAR...DF	KAFARGPFA	RVFHSPYTVASDF
Pnat1L1-2	YKEQYVYIYR	KDMLQV	QEHFYH	PELKKQ	ESNDT	DVFSREPFII
Ipun1L1-2	YKEQYVYIYR	KDVLQV	QEQVYH	ELKKQ	VEFN	DTETFSREPFII
Drer1L1-2	YKEQYVYIYR	KDMLQV	QEQYEH	PEVNES...AS	EVFSREPFII	LVHSSPTTLVKNF
Scan1L1-2	YKEQYVFIYR	SDMKI	TSSYQYK	GGKK...GL	QTFAREP	LIVRFSRPTAIKDF
Pmar1L1	YREQYAFVYR	SNLVKL	RDSHQYK	ENDAQ...GP	CVELREPF	SVRFHSPTAVQDL

	160	170	180	190	200	210																									
1 Hsap1L3	PLHT	PETSVKEIDE	LVEVYTDVK	HRWKAENFI	FMGDFNAGCS	YVPPKKA	AWKNIRLRT	D																							
Uurs1L3	PLHT	PETSVKEIDE	LADVYWDVK	RRWKAENFI	FMGDFNAGCS	YVPPKKA	AWKNIRLRT	D																							
Mmus1L3	PLHT	PETSVKEIDE	LVDVYTDV	RSQWKTE	NFIMGDFNAGCS	YVPPKKA	AWQNIRLRT	D																							
Lafr1L3	PLHT	PETSIKEIDE	LVDVYMDVK	KRWNAQNF	IFMGDFNAGCS	YVPPKKS	WRNIRLRT	D																							
Mdom1L3	PLHT	PETSVREIDE	LFDVYMDVK	RQWKPEN	IFMGDFNAGCS	YVPPKKS	SWKEIRLR	MD																							
Ggal1L3	PLHT	PEMAVREIDE	LYDVYLDI	KQHWDTEN	FVFMGDFNAGCS	YVPPK	HWKNIRLRT	S																							
Apla1L3	PLHT	PEMAVREIDE	LYDVYLDV	RQWDTKN	FVFMGDFNAGCS	YVPPK	HWKNIRLRT	Y																							
Dnov1L3	PQHT	PETAVREIDE	LYDVYLDV	KQRWMTEN	FIFMGDFNAGCS	YVPPK	QWQNIRLRT	H																							
Lagi1L3	PLHT	PEMAVREIDE	LYDVYLDV	RQLKSEN	FIFMGDFNAGCS	YVAKK	HWKNIRLR	NH																							
Pbiv1L3	SMHT	PEMAVREIDE	LYDVFLD	VKLWKTKN	FIFMGDFNAGCS	YVAKK	QWKNIRLR	NH																							
Scan1L3	PQHT	SPDSSVSE	INA	LYDVYTE	VKARWR	AKYFIL	MGDFNAGC	YVTRK	KWPNIRLR	ND																					
Pmar1L3	PQHT	TPEASVKE	LEDE	LYDVYMD	VKNRWKA	ENMIF	LGDFNAGC	TYVTR	KKWSQ	IRIRME																					
Pnat1L4-2	PVHT	KPEDSQKE	LEDE	LYDVCM	AVREKWK	TDNIMI	LGDFNAG	DGAYV	SKK	KMKAIRIR	SD																				
Ipun1L4-2	PVHT	KPKDSEKE	LEDE	LYDVSM	AVRKWK	TNNIMI	LGDFNAG	DGAYV	SKK	KMKKIRIR	TD																				
Drer1L4-2	PVHT	KPKDSQKE	LEDE	LYDVVE	VRDKWK	TDNVM	ILGDFNAG	DGAYV	SKK	KMKAIRIR	TD																				
Drer1L4	PVHT	KPEDSVKE	LEDE	LYDVQ	DRKWK	TDNIMI	ILGDFNAG	DGSYV	SKK	KMKQIRIR	SD																				
Pnat1L4	PVHT	KPEASEKE	LEDE	FYDVT	QVVKDK	WKTEN	IMI	LGDFNAG	DGSYV	SKK	EMKGIRIR	TD																			
Trub1L4	PVHT	KPDDSEKE	LEDE	LYDVFL	AVTKW	ATDN	VMIL	LGDFNAG	DGAYV	SKK	KMKKIRIR	SD																			
Ipun1L4	PVHT	KPEDSEKE	LEDE	LYDVV	LAVDR	KWKTDH	IMI	LGDFNAG	DGSYV	SKK	EMKAIRI	YKD																			
Scan1L4	PQHT	CPDSSVKE	LEDE	LYDVFL	KIKKE	WHIEN	IMI	LGDFNAG	DGRYV	SKK	KMKTIRLR	KD																			
2 Pnat1L1	PVHT	SPTNATKE	LEDE	LYDVFE	DRQRWR	TENMM	F	LGDFNAG	ACGYV	AKK	NRKNIRLY	TV																			
Ipun1L1	PMHT	PSNATKE	LEDE	LYDVFE	DRHLWT	TEDIM	F	LGDFNAG	ACGYV	AKK	NRKNIRLY	SN																			
Drer1L1	PQHT	PSNATKE	LEDE	LYDVFE	DRVWR	TENVM	F	LGDFNAG	ACGYV	AKK	NRKNIRLY	TD																			
Trub1L1	PQHT	APANTTKE	LEDA	LYDVLD	VRKMWK	TEDV	M	LGDFNAG	DCGYL	AKK	NREKLQ	LITD																			
Hsap1L1	PLHT	PKAVEKEL	NA	LYDVFL	EVSQHW	QSKD	VIL	LGDFNAG	D	CASL	T	KKRLDKLE	LRT	E																	
Lafr1L1	PLHT	PKAVEKEL	NA	LYDVFL	DSQRWQ	SEDM	IL	LGDFNAG	D	CASL	T	KKRLGELV	LRT	E																	
Uurs1L1	PLHT	PKAVEQEL	NA	LYDVFL	DSQRWQ	TKDM	IL	LGDFNAG	D	CASL	T	KKRLGEL	LLRT	Q																	
Mdom1L1	PLHT	PKDVATE	LD	ALYRVFL	NVSQHW	QSE	V	M	LGDFNAG	D	CSS	LS	KKRQGE	L	VLR	T	K														
Mmus1L1	PLHT	PKDVEKEL	NA	LYDVFL	DSYQRW	Q	N	V	IL	LGDFNAG	D	CASL	T	KKRLKS	LLRT	K															
Lagi1L1	PQHT	MPKAAETE	IDA	LYDVFL	SVKER	WGTED	M	I	F	LGDFNAG	D	C	YV	AKK	RWQ	IRLR	Q														
Pbiv1L1	PQHT	MPSKAEVE	IDA	LYDVFL	NVQER	WGTED	M	M	F	LGDFNAG	D	C	YV	AKK	RWKE	IRLR	Q														
Dnov1L1	PLHA	APGAAEA	EIDA	LHDVYER	VRE	ERW	Q	Q	D	V	L	F	LGDFNAG	D	C	YV	AAS	RWGR	IRLR	H	D										
Lagi1L1-2	LHHT	SPREAAHE	LDL	LFVCTE	LMQRW	KTEN	V	M	L	LGDLNAG	A	G	YI	PAS	AWAG	IRLR	N	H													
Pbiv1L1-2	LHHT	CPREAVHE	LDL	LFVCMEL	LIQW	WKTEN	V	M	V	L	LGDLNAG	A	G	YI	P	SAWTR	IRLR	N	H												
Pnat1L1-2	GHHT	CTKAMKEME	ALF	GVFQ	AVKK	KWK	TEN	V	M	F	LGDLNAG	D	C	YV	T	I	K	GLKS	L	KLR	N	D									
Ipun1L1-2	GHHS	CPRKAMNEME	ELF	EVFQ	VVRN	KWK	SEN	V	M	L	LGDLNAG	D	C	YV	T	I	K	GLK	L	R	L	R	N	D							
Drer1L1-2	GQHT	SPKSAMKEM	S	LYEVFQ	T	VKK	KWK	TEN	V	M	F	LGDLNAG	A	C	N	YV	T	N	K	GLRN	V	R	L	R	S	D					
Scan1L1-2	PLHAP	PGEAVNE	IDQ	LYNVFL	DVRA	KWDIED	IM	I	L	G	D	L	N	A	C	R	YV	S	A	K	D	W	E	T	IRLR	N	K				
Pmar1L1	GQHT	SPKSAVSE	ELQ	LHTVFE	EVVRL	WGNQ	N	V	M	L	G	D	L	N	A	C	G	YV	S	A	T	N	W	S	H	V	R	I	R	D	.

		220	230	240	250	260								
1	Hsap1L3	PRFVWLI	GQEDTTVK	KS	TNCAYDRIVL	RQGEIVS	SVVPK	SN	SV	FD	FQKAY	K	LTEEEA	
	Uurs1L3	SKFVWLI	GQEDTTVK	RS	TS	CAYDRIVL	RQGEIIS	SFVVK	SN	ST	FN	FQKAY	ELTEEEA	
	Mmus1L3	PKFVWLI	GQEDTTVK	KS	TS	CAYDRIVL	CQGEIVN	SVVPR	SS	GV	FD	FQKAY	DLSEEEA	
	Lafr1L3	PGFVWLI	GQEDTTVK	ES	TNCAYDRIVL	RQGEIIS	SVVPS	NS	SI	FN	FQKAY	ELSEEEA		
	Mdom1L3	PKFVWLI	GQEDTTVK	GT	TK	CAYDRIVL	QGEIIS	SVVPS	NS	SI	FN	FQKAY	RMTEEEA	
	Ggal1L3	SEFVWLI	GQEDTTVK	RS	TS	CAYDRIVV	SQGEQLS	AVVPH	SV	NI	FD	FQAA	FQMSEEA	
	Apl1L3	SEFVWLI	GQEDTTVK	NS	TS	CAYDRIVV	SQGEQLS	AVVPH	SV	NI	FD	FQAA	FQMSEEA	
	Dnov1L3	PEFVWLI	GQEDTTVK	RS	TNCAYDRIVV	SQGEALV	AVVPR	SANV	FD	FQKV	FWL	TEEEA		
	Lag1L3	TEFVWLI	DKSDTTVK	AS	TR	CPYDRIVL	RQGEIIS	SVVPS	NS	SI	FN	FQAA	FQMSEEA	
	Pbiv1L3	TDFFWLI	DKSDTTVK	PT	TH	CPYDRIVV	HQGEQLS	AVVPH	SV	NI	FD	FQAA	FQMSEEA	
	Scan1L3	TNFVWLI	EDNNDTTV	RES	TH	CAYDRIVL	RQGEIIS	SVVPS	NS	SI	FN	FQAA	FQMSEEA	
	Pmar1L3	EGFHWLI	GDEDTT	VNTN	TR	CAYDRIVV	KGEPLYR	AVVPG	SA	KP	FN	FQAA	YGLSETEA	
	Pnat1L4-2	EDFHWLI	GDDVDTT	ASLS	ND	TYDRIVV	YKDGMLN	AVVPG	SA	KP	FN	FHSAY	KLTEELA	
	Ipun1L4-2	EDFHWLI	GDDVDTT	ASLS	ND	TYDRIVV	YKDGMLN	AVVPR	SA	KP	FN	FHSAY	KLTEELA	
	Drer1L4-2	TDFFWLI	GDDVDTT	VKT	TNDNT	YDRIVV	YKEDMLE	AVVPR	SA	KP	FN	FQEA	YKLTEEEA	
	Drer1L4	PEFHWLI	SDDDDTT	ASTH	NDNT	YDRIVI	YGDDMMQ	AVVPG	SA	KP	FN	FQTA	FSLTEEDA	
	Pnat1L4	KNFHWLI	SDDVDTT	TRLK	NDNT	YDRIVV	YGKALLD	AVVPN	SA	KA	FN	FQOE	YGLTEADA	
	Trub1L4	RNFHWLI	GDDVDTT	ASNR	NSHT	YDRIVV	YKDDMLQ	AVVPR	SA	KP	FN	FQOE	YGLTEADA	
	Ipun1L4	ADFHWLI	RDKVDTT	STK	NDHT	YDRIVV	YKDDMLQ	AVVPR	SA	KA	FN	FQOE	YGLTEADA	
	Scan1L4	KDFHWLI	GDDDDTM	ASLKT	DEA	YDRIVV	YKDDMLQ	AVVPR	SA	KP	FN	FQOE	YGLTEADA	
2	Pnat1L1	SSFHWLI	EDDKQD	TTVRES	TD	CAYDRIVV	HGDHFLR	AVVPF	SA	RP	FN	FARE	YHLTEEEA	
	Ipun1L1	.AFHWLI	DDKQD	TTVRS	TD	CAYDRIVV	HGDHFLR	AVVPF	SA	RP	FN	FARE	YHLTEEEA	
	Drer1L1	PSFHWLI	QDNVD	TTVKES	TD	CAYDRIVV	HGEPLFR	S	IK	PF	SA	QP	FN	FKEFLTEEA
	Trub1L1	QNLHFWLI	ADKTD	TTVRAS	TS	CSYDRIVV	HGEPLFR	S	IK	PF	SA	QP	FN	FKEFLTEEA
	Hsap1L1	PGFHWV	ADG	EDTTVRAS	TH	CTYDRIVL	HGERCRS	LLH	..	TAAA	FD	FPTS	FQLTEEEA	
	Lafr1L1	TGFHWAI	ADG	EDTTVRAS	TH	CTYDRIVL	HGERCQS	RLH	..	SAAA	FN	FPRS	FQLTEEEA	
	Uurs1L1	AGFHWV	ADG	EDTTVRAS	TH	CTYDRIVL	HGERCQS	RLH	..	SAAA	FN	FPRS	FQLTEEEA	
	Mdom1L1	PGFLWV	IQD	GEDTTVRDS	TH	CTYDRIVI	HGERCQS	RLH	..	SAAA	FN	FPRS	FQLTEEEA	
	Mmus1L1	AGFHWV	IPD	GEDTTVRAS	TN	CTYDRIVV	HGGQCQM	LLK	..	AAAT	FD	FPRK	FQLTEEEA	
	Lag1L1	PGFHWLI	GDNAD	TTVRDT	TH	CAYDRIVV	HGERCLA	AVVPG	SA	QP	FN	FAKE	FGLSEAEA	
	Pbiv1L1	PGFHWLI	GQAD	TTVREK	TH	CAYDRIVI	HGEHCLN	AVVPG	SA	EP	FD	FKEF	GLSEEEA	
	Dnov1L1	PPFRWLL	GDDSD	STVRS	TH	CPYDRIVV	AGERSQS	LVVPG	SART	FN	FTAH	FGLTEEEA		
	Lag1L1-2	LAFHWLI	GQED	TTVSHR	TC	CAYDRIVV	HGEELLG	AVVPR	SA	KP	FN	FQAL	GLSEEEA	
	Pbiv1L1-2	PAFHWLI	SKED	TTVSHR	TC	CAYDRIVV	HGEELLS	AVVPG	SA	KP	FN	FQAL	GLSEEEA	
	Pnat1L1-2	PRFRWLI	ITDEE	DTTV	DK	TH	CAYDRIVV	HGKELIS	GIVPE	SA	QP	FN	FKNV	FRLTEEEA
	Ipun1L1-2	PKFLWLI	ITDEE	DTTV	DK	TH	CAYDRIVV	HGKELIS	GIVPE	SA	QP	FN	FKNV	FRLTEEEA
	Drer1L1-2	PKFHWLI	IRDEE	DTTV	REK	TR	CAYDRIVV	HGKELIS	GIVPE	SA	QP	FN	FQKE	FNLSEEEA
	Scan1L1-2	PGFHWLI	GDNQD	TTASAR	TD	CAYDRIVV	HGWNF	FKALV	PG	SA	KV	FN	VQEE	FGLTEEEA
	Pmar1L1	PSFHWAI	GDDVDTT	VNKN	TD	CAYDRIVV	HGTELRS	ALVAG	SARA	FN	FQKY	GLS	NEKA	

	270	280	290	300
1 Hsap1L3	LDVSDHFPVEFKL	QSSRAFTNS	..	KK.SVTLRKKTKS.K.R..S.....
Uurs1L3	LDVSDHFPVEFKL	QSSRAFTN	..	RKKSISPKKKK.A..HR..S.....
Mmus1L3	LDVSDHFPVEFKL	QSSRAFTNN	..	RK.SVSLKKRKKG..NR..S.....
Lafr1L3	LNI SDHFPVEFKL	QSSRAITNS	..	KK.SVSPKPKKKA.KS..S.....
Mdom1L3	LGI SDHFPVEFEL	QPTGSFTGLV	..	R..S.FAPKKT.GRK.KSQ.KP.....
Ggal1L3	LGVSDHFPVEFEL	KA.RGGFFDWI	K..	SKFSKKGK.ARSRR.SGS.....
Aplal1L3	LGVSDHFPVEFEL	KA.KGGFFDWL	K..	SKFSKRRR.GRKNR.OAKS.....
Dnov1L3	LGVSDHFPVEFEL	KATSGTF.SWQ	K..	PPFPKRT..RKNRRRSRAS.....
Lag11L3	LAVSDHFPVEFQL	RASRH...SP	RR.ARAS.....	NRRLLQOG.....
Pbiv1L3	LAVSDHFPVEFQL	RTTRH.Y.S	RR..RA.R...S..CR..ALV.....	
Scan1L3	LEVSDHFPVEVDL	QESHGYFYWL	R..S.F.KGLKG.....	
Pmar1L3	LEVSDHFPVEV	EIK.....		
Pnat1L4-2	LGI SDHYPEVSL	K..R.....	K..SVS.KTGGPA.KALKR.KAS.....	
Ipun1L4-2	LRI SDHYPEVSL	K..K.....	K..PVT.RPKGQ.KAVKR.KAS.....	
Drer1L4-2	LDVSDHYPEVTL	K..K.....	K..PAA.KATGKT.KKPQRKA.....	
Drer1L4	LKVSDHYPEVEL	KD.KS.....	KKR.KV.K.....	
Pnat1L4	LKVSDHYPEVEL	K..KSGS.....	KR.NK.....	
Trub1L4	LKISDHYPEVEL	KSVSQMKEGTVNSLQWSSRS	SHCLGA.....	
Ipun1L4	LKVSDHYPEVEL	KLSNGDGQSKQLNSL	VFVHPSSTYDLIYNT.....	
Scan1L4	LEVSDHYPIEVEL	RLIE.....		
2 Pnat1L1	LKVSDHYPIEVDL	KT.....	MSGSTRESTPPYLLPLTFGFILLQLNAD..	
Ipun1L1	LRVSAHYPEVAL	K.....	IKGSEQRSIILFQITLGLPMLLQK.....	
Drer1L1	LEVSDHYPIEVDL	KDV.....	KSRMSTRYSEAPCLLPAVFVNLALLMQMIV	
Trub1L1	LEVSDHYPEVEL	LKNAAPTLLPSCF	GELTRETTELKMFFFFFFFWSSLVLQRLTW..	
Hsap1L1	LNI SDHYPEVEL	KLS.....	QAHSVQPLSLTVLLLSLLSPQLCPAA...	
Lafr1L1	LNI SDHYPEVEL	SRAAPGVLPVSLVGLLLPLMLLPLPLQLG.	
Uurs1L1	LNI SDHYPEVEL	NRVAPRVQPLGLAALLLLLLLLPLQGLLA.	
Mdom1L1	LNI SDHYPEVEL	NGSPGWPLVYSPVILALPLLLIGLS.....	
Mmus1L1	LRI SDHYPEVEL	SQATPLSIPPHYLAALLSLLPSQLD.....	
Lag11L1	LEI SDHYPEVEL	LNRAH.....	WRCQASPAGLVLLALVMLAGSGYGI.....	
Pbiv1L1	LEVSDHYPEVEL	V.....	SSCKKLQASLAGLVLLAIAVISDSRCGI..	
Dnov1L1	LAVSDHYPEVEL	LAL.....	DGAWGGPQHPPALALLGLGALLRLP.....	
Lag11L1-2	LAVSDHYPEVNL	RLAPKAQREL.....		
Pbiv1L1-2	LEI SDHYPEVKL	QLAPKTQEL.....		
Pnat1L1-2	LEVSDHYPEVDL	KPSHHYLVRLHEL.....		
Ipun1L1-2	LEVSDHYPEVDL	KSSHYYHLRHEL.....		
Drer1L1-2	LEVSDHFPVEVDL	KANHRYLLRHEL.....		
Scan1L1-2	VEVSDHYPEVKL	KLEAVHYEL.....		
Pmar1L1	LEVSDHYPEVKL	KVPVHHHEL.....		